

## ABSTRACT

A method of measuring a selected physical parameter at a location within a region of interest comprises the steps of: launching optical pulses at a plurality of preselected interrogation wavelengths into an optical fiber (1) deployed along the region of interest, reflectors ( $2_0, 2_1, \dots, 2_n$ ) being arrayed along the optical fiber (1) to form an array (9) of sensor elements, the optical path length between the said reflectors (2) being dependent upon the selected parameter; detecting the returned optical interference signal for each of the preselected wavelengths; and determining from the optical interference signal the absolute optical path length (L) between two reflectors (2) at the said location, and from the optical path length (L) so determined the value of the selected parameter at the said location.